



(10) **Patent No.:** US 9,638,298 B2  
(45) **Date of Patent:** May 2, 2017

- (58) **Field of Classification Search**  
CPC ... A01B 12/006; F16H 19/06; F16H 19/0672;  
B25J 9/104  
See application file for complete search history.

- (56)
- References Cited**

- U.S. PATENT DOCUMENTS

- |           |      |        |                |                         |
|-----------|------|--------|----------------|-------------------------|
| 4,280,669 | A *  | 7/1981 | Leanna .....   | B65H 19/26<br>242/527.1 |
| 6,715,709 | B2 * | 4/2004 | Stephens ..... | B65H 18/20<br>242/533   |

- (Continued)

- FOREIGN PATENT DOCUMENTS

- |    |            |   |         |
|----|------------|---|---------|
| JP | S60-197505 | A | 10/1985 |
| JP | H05-346149 | A | 12/1993 |

- (Continued)

- Primary Examiner — David M Fenstermacher

- (74) *Attorney, Agent, or Firm* — Pearne & Gordon LLP

- (57)

- ## ABSTRACT

- The drive source of a feeder (111) is utilized to drive a feed error correction device for correcting error in feeding a moving body caused by extension of linear bodies (161A, 161B) of the feeder. With the feeder (111) running, when extension at or above a predetermined value occurs in the linear bodies (161A, 161B), a guide unit (171) including a driven rotating wheel (172) for the linear bodies tows (or displaces) through power received from the drive source of the feeder, bringing the linear bodies (161A, 161B) into a state of appropriate tension. The guide unit (171) receives transmission of power in one direction only and appropriately tows the linear bodies (161A, 161B), thereby cancelling extension of the linear bodies at or above the predetermined value.

- US 2015/0300464 A1      Oct. 22, 2015

- (30) **Foreign Application Priority Data**

- Mar. 10, 2012 (JP) ..... 2012053881

- (51) **Int. Cl.**  
*F16H 19/06* (2006.01)  
*B25J 9/10* (2006.01)

- (52) **U.S. Cl.**  
CPC ..... *F16H 19/06* (2013.01); *B25J 9/104*  
(2013.01); *F16H 19/0672* (2013.01)

- 5 Claims, 8 Drawing Sheets**

